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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,215	03/05/2002	Setsuo Kobayashi	HITA.0166	6106
7590	10/08/2003		EXAMINER	
Stanley P. Fisher Reed Smith LLP Suite 1400 3110 Fairview Park Drive Falls Church, VA 22042-4503			PATTERSON, MARC A	
			ART UNIT	PAPER NUMBER
			1772	

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/091,215

Applicant(s)

KOBAYASHI ET AL.

Examiner

Marc A Patterson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 – 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With regard to Claim 1, the phrase ‘which traps ionic impurities’ is indefinite as it appears to be directed to a desired result, rather than to a structural limitation. For purposes of examination, the claimed diamine will be assumed to mean any diamine.

3. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase ‘wherein AC image retention is 8% or less’ is indefinite as it appears to be directed to a desired result, rather than to a structural limitation.

4. Claims 12 and 23 – 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase ‘wherein ionic image retention is not observed after pixels have been turned on for two minutes’ is indefinite as it appears to be directed to a desired result, rather than to a structural limitation.

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5. Claims 15 and 34 – 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each of Claims 15 and 34 – 36 contains what appears to be a Japanese character, in the units of the second claimed thickness. Its meaning is unclear.

6. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase 'ionic image retention strength' is indefinite as its meaning is unclear. The phrase also appears to be directed to a desired result, rather than to a structural limitation.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 1 – 4, 6 – 9, 10 – 15 and 21 – 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al (U.S. Patent No. 5,796,458) in view of Matsuo et al (U.S. Patent No. 3,994,567).

With regard to Claims 1 – 4, 11 – 13, 21 – 32, Koike et al disclose a liquid crystal display device (column 6, lines 20 – 25) comprising substrates disposed in opposition to each other (glass plates; column 6, lines 26 – 34) with a liquid crystal being interposed therebetween (column 6, lines 26 – 38), a pixel electrode (column 6, lines 54 – 60), a counter electrode

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(common electrode comprising indium tin oxide, therefore a transparent conductive layer generating an electric field between itself and the pixel electrode; column 6, lines 39 – 46), alignment films disposed in contact with the liquid crystal on the liquid crystal side surfaces of the respective substrates (therefore an insulating film having uniaxial orientation properties; column 7, lines 5 – 11), each of the alignment films being made of a material containing a diamine structure (polyimide comprising diamine component; column 12, lines 39 – 55). Koike et al fail to disclose a liquid crystal which has a positive dielectric anisotropy.

Matsuo et al teach the use of a liquid crystal having a positive dielectric anisotropy in the making of a liquid crystal display (column 7, lines 11 – 32) for the purpose of obtaining a liquid crystal display having a wide range of operational temperature (column 7, lines 11 – 32) The desirability of providing for a liquid crystal which has a positive dielectric anisotropy in Koike et al, which is a liquid crystal display, would therefore be obvious to one of ordinary skill in the art.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for a liquid crystal which has a positive dielectric anisotropy in Koike et al in order to obtain a liquid crystal display having a wide range of operational temperature as taught by Matsuo et al.

With regard to Claims 6 – 9, Koike et al teach an alignment film comprising a diamine as discussed above. The claimed aspect of the alignment film comprising the structures in Claims 6 – 9 therefore reads on Koike et al.

With regard to Claim 10, as stated above the insulating film taught by Matsuo et al is between the counter electrode and other electrode; the other electrode is a pixel electrode, as stated above, and therefore includes electrodes which extend in two directions.

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With regard to Claims 14 – 15 and 33 – 36, Matsuo et al teach an alignment film thickness of 100 nm (0.1 microns; column 5, lines 19 – 25 of Matsuo et al).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al (U.S. Patent No. 5,796,458) in view of Matsuo et al (U.S. Patent No. 3,994,567) and further in view of Yoshikai et al (U.S. Patent No. 5,911,899).

Koike et al and Matsuo et al disclose a liquid crystal display comprising a conductive layer comprising indium tin oxide as discussed above. Koike et al and Matsuo et al fail to disclose a conductive layer comprising indium zinc oxide.

Yoshikai et al teach that indium zinc oxide is equivalent to indium tin oxide as a conductive layer (column 8, lines 3 – 7) for a liquid crystal display (column 1, lines 5 – 13) for the purpose of using a layer which is transparent (column 8, lines 3 – 7). The desirability of providing for indium zinc oxide in Koike et al and Matsuo et al, which is a liquid, crystal display, would therefore be obvious to one of ordinary skill in the art.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for indium zinc oxide in Koike et al and Matsuo et al in order to use a layer which is transparent as taught by Yoshikai et al.

10. Claims 16 – 19 and 37– 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al (U.S. Patent No. 5,796,458) in view of Matsuo et al (U.S. Patent No. 3,994,567) and further in view of Kelly (U.S. Patent No. 5,800,733).

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Koike et al and Matsuo et al disclose a liquid crystal display as discussed above. With regard to Claims 16 – 19 and 37 – 39, Koike et al and Matsuo et al fail to disclose a liquid crystal comprising difluorobenzene and dicyanobenzene.

Kelly teach the use of difluorobenzene and dicyanobenzene (column 29, lines 58 – 67) in the making of a liquid crystal optical component (column 1, lines 4 – 7) for the purpose of obtaining an optical component which has a viscosity at normal processing temperatures that is not too high (column 1, lines 62 – 67; column 2, lines 1 – 3). The desirability of providing for difluorobenzene and dicyanobenzene in Koike et al and Matsuo et al, which is a liquid crystal display, would therefore be obvious to one of ordinary skill in the art.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for difluorobenzene and dicyanobenzene in Koike et al and Matsuo et al in order to obtain an optical component which has a viscosity at normal processing temperatures that is not too high as taught by Kelly.

11. Claim 20 and 40 – 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al (U.S. Patent No. 5,796,458) in view of Matsuo et al (U.S. Patent No. 3,994,567) and Kelly (U.S. Patent No. 5,800,733) and further in view of Gray et al (U.S. Patent No. 5,273,680).

Koike et al, Matsuo et al and Kelly disclose a liquid crystal display comprising difluorobenzene as discussed above. With regard to Claims 20 and 40 – 41, Koike et al, Matsuo et al and Kelly fail to disclose a liquid crystal optical component comprising monocyancyclohexane

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Gray et al teach the use of monocyanocyclohexane (column 12, lines 67 – 68; column 13, lines 1 – 7) in a liquid crystal (column 13, lines 28 – 31) for the purpose of obtaining a liquid crystal display which is chemically stable against humidity and air (column 5, lines 50 – 54). The desirability of providing for monocyanocyclohexane in Koike et al, Matsuo et al and Kelly, which is a liquid crystal display, would therefore be obvious to one of ordinary skill in the art.

It therefore would have been obvious for one of ordinary skill in the art at the time Applicant's invention was made to have provided for monocyanocyclohexane in Koike et al, Matsuo et al and Kelly in order to obtain a liquid crystal display which is chemically stable against humidity and air as taught by Gray et al.

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc Patterson, whose telephone number is (703) 305-3537. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (703) 308-4251. FAX communications should be sent to (703) 872-9310. FAXs received after 4 P.M. will not be processed until the following business day.

Marc A. Patterson, PhD.

*Marc Patterson*  
Art Unit 1772

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772

9/29/03